

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 August 2002 (08.08.2002)

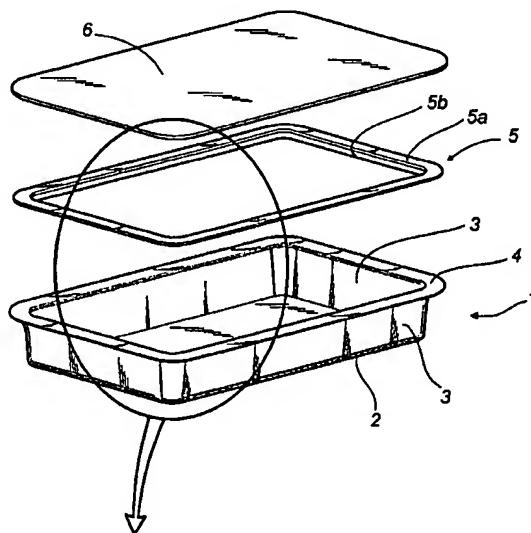
PCT

(10) International Publication Number
WO 02/060768 A1

- (51) International Patent Classification⁷: **B65D 5/56**, 25/14, 77/20
- (21) International Application Number: **PCT/IB02/00243**
- (22) International Filing Date: 29 January 2002 (29.01.2002)
- (25) Filing Language: Italian
- (26) Publication Language: English
- (30) Priority Data:
BO01A000045 30 January 2001 (30.01.2001) IT
- (71) Applicant (*for all designated States except US*): **IPACK S.R.L.** [IT/IT]; Via Einstein, 74, I-47025 Mercato Saraceno (IT).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **SINTONI, Walter** [IT/IT]; Via XX Aprile, 63, I-47025 Mercato Saraceno (IT).
- (74) Agent: **LANZONI, Luciano**; Bugnion S.p.A., Via Goito, 18, I-40126 Bologna (IT).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: A FOODSTUFFS CONTAINER AND THE METHOD FOR PRODUCING THE CONTAINER



(57) Abstract: A foodstuffs container (1) comprises a flat base (2) and a set of sides (3) which are perpendicular or at an angle to the flat base (2) and whose lower edges are connected to the base (2). The tops of the sides (3) form an edge (4) which extends continuously, forming a closed surface which is the container (1) upper perimeter. The edge (4) can be fitted with a strengthening element (5) divided into a first part (5a) which can be stably attached to a portion of the edge (4) close to its connection to the sides (3), and a second part (5b), which can be attached to a portion of the sides (3) close to the edge (4). Both parts (5a, 5b) of the strengthening element (5) extend in such a way that they partially cover the edge (4) and the sides (3), forming an additional surface or layer designed to allow the edge (4) sides (3) zone to be strengthened.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

DescriptionA foodstuffs container and the method for producing the containerTechnical Field

The present invention relates to a foodstuffs container and the method for producing the container.

5 Background Art

At present widespread use is made of containers (also acting as trays) for displaying and selling foodstuffs such as meats, vegetables, fruit, etc., in shops and supermarkets or hypermarkets. These trays allow the creation of a pack of a product enclosed in a protected environment (thanks to the fact that a plastic covering film is normally used), which may be pre-weighed and with the price attached.

Until now, such containers have been made in two different ways:

15 - the first consists in making the container as a single body using a plastic material, normally impact resistant polystyrene or foam polystyrene, using an injection moulding process;

- the second method consists in making the container from paper material, preferably pure cellulose, obtaining it from sheets of card, paper or cardboard with different basic weights and thickness and with single or multiple layers, depending on the requirements of the product to be inserted in the container.

In a single layer container, the inner surface of the container may have an additional coating made of plastic (for example, PET or PE), which acts as a barrier protecting the product from greases, liquids and, partly, from gases, so that the cellulose structure below is not affected.

However, such containers have an overall lack of rigidity due to the material used to make them and the production process. This lack of rigidity is accentuated when large quantities of products

are placed in the containers and they are picked up and transported or handled.

5 This disadvantage is generated, in particular, by the join zones or corners of the containers, which are often made by "curling" the material around that zone. This means that when the full container is picked up it tends to open outwards at the corners, or has difficulty retaining its shape, due to a lack of mechanical strength in particular at the upper edge of the container.

10 To overcome the above-mentioned disadvantage, the Applicant has created (see patent application No. BO97U000111) a foodstuffs container with a ring (also made of cellulose) attached to the upper edge, copying the development of the edge and forming an additional edging surface or layer designed to allow the edge to be strengthened, at least at the zones where the sides meet.

15 This solution on one hand allows a partial increase in the rigidity of the cellulose container (but not to the extent that it satisfies all current market requirements), also limiting its use to hold products which do not require a container with a two-way watertight seal inside to outside.

20 This limitation derives from the fact that the strengthening ring (with regular flat cross-section) is attached to and copies the edge of the container, which has a rough profile at the curled joins or corners, with the consequent presence of loops or gaps between the edge and the ring contact surface. This particular configuration, together with the need to attach a covering element to the ring-shaped element, makes it impossible to achieve a perfectly watertight seal, in particular from the inside to the outside of the container, due to the gaps at the corners.

30

Disclosure of the Invention

The aim of the present invention is, therefore, to overcome the above-mentioned disadvantages by providing a foodstuffs container, and the method for its production, which is very rigid and can be closed with a watertight seal, so that it can be adapted to the most diverse container uses, in particular for foodstuffs.

35 Accordingly the present invention provides a foodstuffs container comprising a flat base and a set of sides which are

perpendicular or at an angle to the flat base and connected to the base at their lower edges. The tops of the container sides form an edge extending continuously and forming a closed surface which is the upper perimeter of the container. This edge can be fitted with
5 a strengthening element divided into a first part, which can be stably attached to a portion of the edge close to its connection to the container sides, and a second part which can be attached to a portion of the container sides close to the edge. These two parts of the strengthening element extend in such a way that they partially
10 cover the edge and the container sides, forming an additional surface or layer designed to allow strengthening of the edge - sides zone.

The present invention also provides a method for producing a container with a watertight seal, comprising the steps of
15 simultaneously attaching a first part of the strengthening element to a portion of the edge close to its connection to the container sides and a second part to a portion of the container sides close to the edge, and applying the covering element to the edge at a portion of its perimeter which is not covered by the strengthening element,
20 so as to obtain a watertight seal from the inside to the outside of the container.

Brief Description of the Drawings

The technical features of the present invention, in accordance
25 with the above-mentioned aims, are set out in the claims herein and the advantages more clearly illustrated in the detailed description which follows, with reference to the accompanying drawings, which illustrate a preferred embodiment, without limiting the scope of its application, and in which:

30 Figure 1 is an exploded perspective view of a foodstuffs container made in accordance with the present invention;

Figure 2 is an exploded side view, with some parts in cross-section to better illustrate others, of a detail of the container illustrated in Figure 1;

35 Figure 3 is a side view with some parts in cross-section to better illustrate others, of a detail of the container illustrated in Figure 1;

Figure 4 is a side view with some parts in cross-section to better illustrate others, of a detail of an alternative embodiment of the container illustrated in Figure 1;

Figure 5 is a side view with some parts in cross-section to better illustrate others, of a detail of the container illustrated in Figure 4, to which a closing element is applied.

Detailed Description of the Preferred Embodiments of the Invention

With reference to the accompanying drawings, and in particular Figure 1, the container disclosed is used, in particular, but without limiting its scope of application, for holding foodstuffs.

This container, labelled 1 as a whole, comprises a flat base 2 and a set of sides 3 which are substantially perpendicular to or, as illustrated, at an angle to the flat base 2 and whose lower edges are joined to the base 2.

The tops of the container sides 3 form an edge 4 extending continuously and forming a closed, flat surface which is the upper perimeter of the container 1.

The edge 4 can be fitted with a ring-shaped strengthening element 5, which is divided into a first part 5a that can be stably attached to at least one portion of the edge 4 close to its connection to the sides 3 (see also Figures 2 and 3), and a second part 5b, which can be attached to a portion of the sides 3 close to the edge 4.

As illustrated in Figures 2 and 3, both parts 5a, 5b, which as a single body form the strengthening element 5, extend in such a way that they partially cover the edge 4 and the sides 3, forming an additional surface or layer designed to strengthen the edge 4 - sides 3 zone.

Thanks to this particular strengthening element 5 configuration, the edge 4 has an external portion 4a which is not covered by the strengthening element 5, allowing the connection of an element 6 which covers the entire container 1, forming a container 1 with inside-to-outside watertight seal.

As already indicated, the strengthening element 5 consists of a single layer, preferably made of cellulose, ring-shaped and in a single body, consisting of the first part 5a which extends flat and can be attached to the innermost portion of the edge 4, and the

second part 5b which covers the extension of the portion of the sides 3 which it overlaps.

5 This element 5 can adapt to the various angles of the sides 3 (perpendicular to or at an angle to the edge 4), since the strengthening element 5 is made of pure cellulose, therefore, during the connection step, suitable pressure allows it to adapt to the shape of the surfaces.

10 Confirming the validity of the embodiment described above, Figures 4 and 5 illustrate an alternative embodiment of the strengthening element 5. In this embodiment, the strengthening element 5 comprises a first part 5a divided into two segments which are joined together, one of which is a third part 5c forming an extension of the first part 5a projecting from the edge 4 of the container 1.

15 The division between the first part 5a and third part 5c of the strengthening element 5 is defined by a perimeter pre-crease 5p (preferably made after application of the element 5 to the edge 4) and such that it allows the third part 5c to bend downwards, so that it adapts better to a covering element 6 when the latter is applied.

20 This further improves the watertight seal created on the container 1 during the container 1 closing step (clearly illustrated in Figure 4), limits the risk of the additional covering element 6 breaking (in particular if it is a plastic film), since the bending of the third part 5c forms a rounded edge of the container 1, 25 allowing a maximum seal to be achieved close to the edge 4 and, equally important, allows constant dimensional stability of the outer perimeter of the container 1.

Therefore, to obtain the container 1 described above with an additional covering element 6, the following steps are performed 30 (see Figures 2 and 3):

- simultaneously attaching a first part 5a of the strengthening element 5 to a portion of the edge 4 close to its connection to the sides 3, and of a second part 5b to a portion of the sides 3 close to the edge 4;
- 35 - applying the covering element 6 (for example, an element made of cellulose or flat plastic (film) material) to the edge 4 at its perimeter portion 4a which is not covered by the strengthening

element 5, so as to create a seal, especially a watertight seal, from the inside to the outside of the container 1.

If the strengthening element 5 is used with the third part 5c, the step of attaching the strengthening element 5 comprises a subsequent step of pre-creasing the third part 5c towards the base 2 of the container 1 (see arrow F in Figure 5) to form a sort of container 1 edge 4 rounded outer perimeter zone.

The covering element 6, in particular a plastic film, is applied directly on the third part 5c and creates a further step in which the third part 5c bends towards the container 1 (see Figure 5), creating a rounded perimeter edge without sharp edges which could cut the covering film.

The covering element 6 can be applied to the perimeter portion 4a by means of heat-sealing, designed to allow the required deformation of the external portion of the covering element 6 opposite the portion 4a (if present) or complete adherence to the third part 5c; alternatively, a special food-safe adhesive may be used.

Similarly, the two parts 5a and 5b which, in a single body, form the strengthening element 5, can be attached by means of simultaneous gluing, after applying pressure so as to adapt the two parts 5a and 5b, on the portion of the edge 4 and on the portions of the sides 3.

A container structured in this way, therefore, fulfils the preset aims by means of a modification to the strengthening ring, to decidedly increase the mechanical strength, without compromising the lightness, practicality and economical nature of the end product. The particular configuration of the ring also allows the outermost portion of the edge to be used to attach a container covering element in such a way as to obtain an inside-to-outside seal (in particular watertight) which is safe and ideal for all types of products.

The invention described can be subject to numerous modifications and variations without thereby departing from the scope of the inventive concept. Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. A foodstuffs container, the container (1) being of the type comprising a flat base (2) and a set of sides (3) which are substantially perpendicular or at an angle to the flat base (2), their lower edges being attached to the base (2); the tops of the sides (3) forming an edge (4) which extends continuously and forms a closed surface which is the upper perimeter of the container (1); it being possible to attach a ring-shaped strengthening element (5) to the edge (4), the container being characterised in that the ring-shaped strengthening element (5) is divided into a first part (5a) which can be stably attached to at least one portion of the edge (4) close to its connection to the sides (3), and a second part (5b) which can be attached to a portion of the sides (3) close to the edge (4); both parts (5a, 5b) of the strengthening element (5) extending in such a way that they partially cover the edge (4) and the sides (3), forming an additional surface or layer designed to allow the strengthening of the edge (4) - side (3) zone.

2. The container according to claim 1, characterised in that the edge (4) has an outer portion (4a) of the edge (4) which is not covered by the strengthening element and which is designed to allow the application of a container (1) covering element (6) which forms an inside-to-outside seal.

3. The container according to claim 1, characterised in that the strengthening element (5) consists of a single ring-shaped layer, in a single body, consisting of the first part (5a) with flat extension, which can be attached to the innermost portion of the edge (4), and the second part (5b), covering the length of the sides (3).

4. The container according to claim 1, characterised in that the strengthening element (5) is made of pure cellulose.

5. The container according to claim 1, characterised in that the strengthening element (5) comprises the first part (5a) divided into

two segments which are joined together, one forming a third part (5c) which forms an extension of the first part (5a) projecting from the edge (4) of the container (1).

5 6. The container according to claim 5, characterised in that the division between the first part (5a) and the third part (5c) of the strengthening element (5) is formed by a perimeter pre-crease (5p) designed to allow the third part (5c) to bend towards the base (2) of the container (1) and to adapt to the outer edge (4) and allow
10 dimensional stability of the container (1) outer perimeter.

7. A method for producing a closed foodstuffs container, the container (1) being of the type comprising a flat base (2) and a set of sides (3) which are substantially perpendicular or at an angle to
15 the flat base (2), their lower edges attached to the base (2); the tops of the sides (3) forming an edge (4) which extends continuously and forms a closed surface which is the upper perimeter of the container (1); it being possible to attach a strengthening element (5) to the edge (4), and to attach a container (1) covering element (6) to the strengthening element, the method being characterised in
20 that it comprises the following steps:

- simultaneously attaching a first part (5a) of the strengthening element (5) to a portion of the edge (4) close to its connection to the sides (3), and of a second part (5b) to a portion of the sides
25 (3) close to the edge (4);
- applying the covering element (6) to the edge (4) at its perimeter portion (4a) which is not covered by the strengthening element (5), so as to obtain a container (1) inside-to-outside seal.

30 8. The method according to claim 7, characterised in that the covering element (6) is attached to the perimeter portion (4a) by heat-sealing.

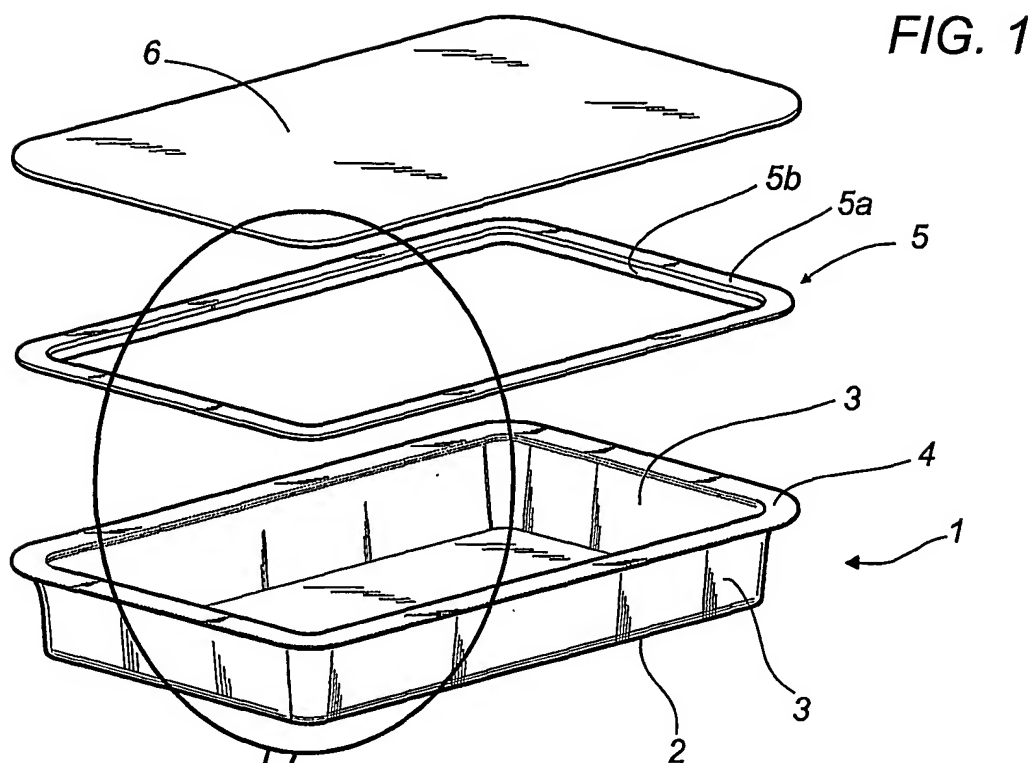
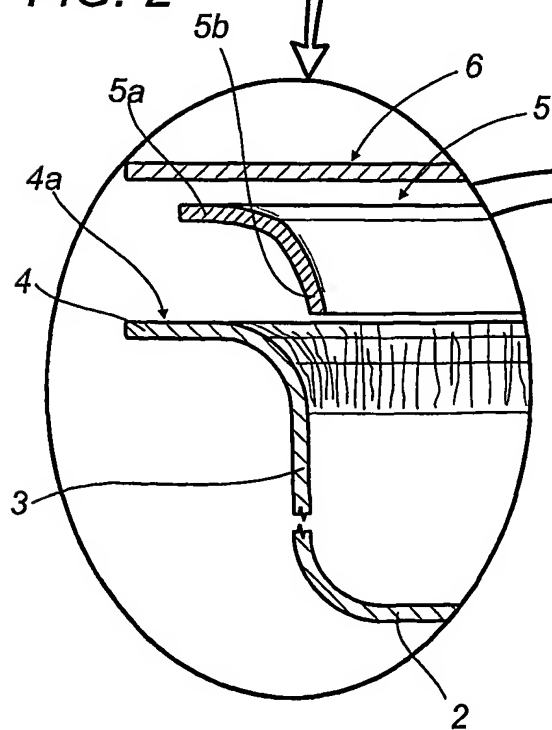
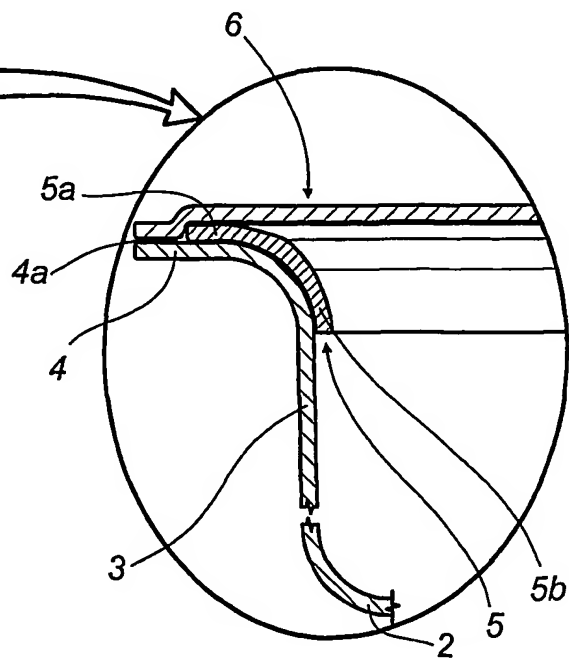
9. The method according to claim 7, characterised in that the two
35 parts (5a, 5b) which, in a single body, form the strengthening element (5), are attached by means of simultaneous gluing, on the portion of the edge (4) and on the portions of the sides (3).

10. The method according to claim 7, characterised in that the step of attaching the two parts (5a, 5b) to the edge (4) and to a portion of the sides (3) involves completely covering the edge (4) by applying the first part (5a) comprising a segment (5c) which
5 forms an extension of the first part projecting from the edge (4).

11. The method according to claim 10, characterised in that the step of attaching the three parts (5a, 5b, 5c) is followed by a step of folding and bending the third part (5c).
10

12. The method according to claims 7 and 10, characterised in that the step of applying the covering element (6) involves attaching the element (6) to the third part (5c).

1/2

**FIG. 2****FIG. 3**

2/2

FIG. 4

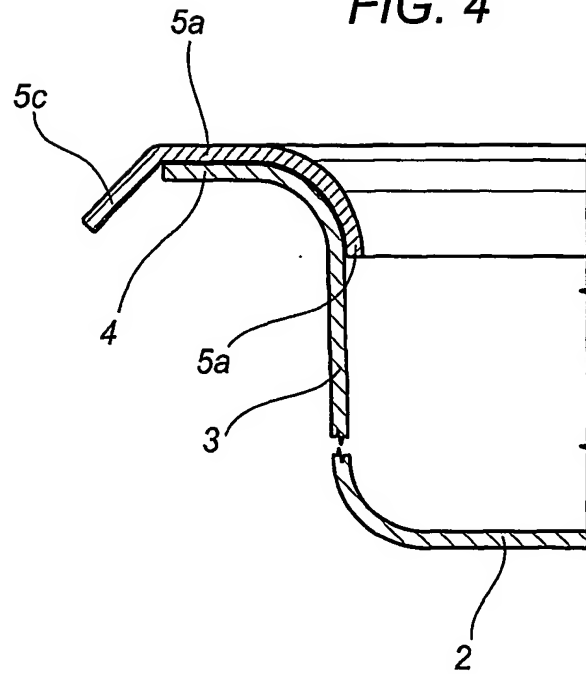
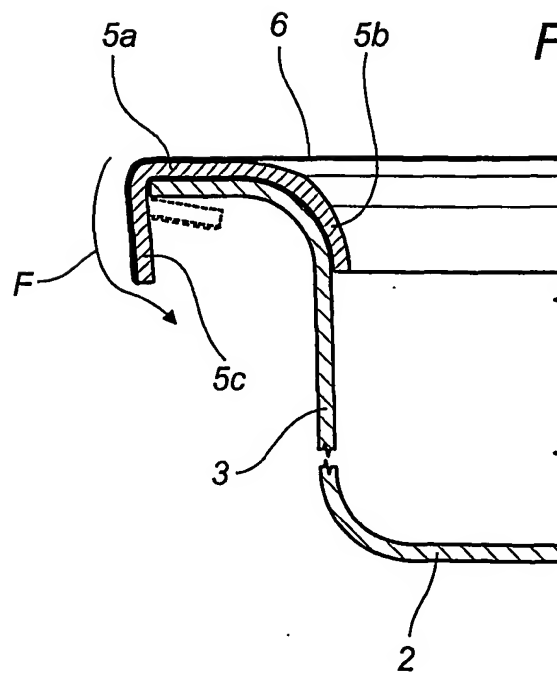


FIG. 5



INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 02/00243

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B65D 5/56, B65D 25/14, B65D 77/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B65D, B65B, A47G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9306016 A1 (DIETRICH, SYLVIA), 1 April 1993 (01.04.93), page 27, line 19 - line 24, figures 3, 4,6,7,9,10, abstract	1-4,7-9
Y	--	5,6,10-12
X	US 3154215 A (E. LE VESCONTE), 27 October 1964 (27.10.64), column 2, line 47 - line 54, figures 1-4	1-5
A	--	6-12

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

14 June 2002

Date of mailing of the international search report

09.07.2002

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

ANNA AHLANDER/E1s
Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 02/00243

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4351997 A (LENNART MATTISSON ET AL), 28 Sept 1982 (28.09.82), figures 2,3,6	1,3
A	--	2,4-6
Y	US 2180891 A (A. WEISENBURG), 21 November 1939 (21.11.39), column 1, line 29 - line 40, figures 10-12,26	5,6,10-12
A	--	
A	DE 19828381 A1 (DIETRICH, JOCHEN ET AL), 30 December 1999 (30.12.99), figures 1,2	1-12
A	--	
A	EP 0903299 A1 (PÖTZSCH, HOLGER), 24 March 1999 (24.03.99), figures 1,2, abstract	1-3,5,6
A	--	
A	GB 2194515 A (WADDINGTONS CARTONS LIMITED), 9 March 1988 (09.03.88), figures 1-3	1-3,5,6
A	--	
A	US 3790021 A (ISABEL W. BAILEY), 5 February 1974 (05.02.74), figure 2	1,3,5,6
A	--	
A	US 4333601 A (JAKOB GRIMM), 8 June 1982 (08.06.82), figure 1	1-3,5,6
	-- -----	

Information on patent family members

PCT/IB 02/00243

Form PCT/ISA/210 (patent family annex) (July 1998)